

TITLE  
PLANT METHIONINE SYNTHASE GENE AND  
METHODS FOR INCREASING THE METHIONINE  
CONTENT OF THE SEEDS OF PLANTS

ABSTRACT

5           This invention relates to a nucleic acid fragment encoding a plant 5-methyltetra-  
hydropteroyltriglutamate-homocysteine methyltransferase or methionine synthase. The  
invention also includes chimeric genes, a first encoding a plant methionine synthase (MS)  
gene, a second encoding a plant cystathionine  $\gamma$ -synthase (CS) gene, a third encoding  
10 feedback-insensitive aspartokinase (AK) or bifunctional feedback-insensitive aspartokinase-  
homoserine dehydrogenase (AK-HDH), which is operably linked to a plant chloroplast  
transit sequence, and a fourth encoding a methionine-rich protein, all operably linked to plant  
seed-specific regulatory sequences. Methods for their use to produce increased levels of  
methionine in the seeds of transformed plants are provided.

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